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The Variance Matters: How Party Systems Represent the Preferences of Voters

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Cross-national analyses are presented that suggest that changes in the variance of voters' policy preferences—in 12 Western European democracies from 1976 to 1998—are associated with corresponding changes in the variance of policy choices on offer in these party systems. This finding is labeled the Voter Distribution Effects Result. *There is also evidence to support a second major finding, the* Electoral Laws Result*, which states that voter distribution effects, i.e., the effects associated with changes in the variance of voters' policy preferences, are stronger in political systems that feature less proportional electoral rules (e.g., plurality voting systems). These findings have implications for party strategies and for our general understanding of political representation.*

While previous theoretical and empirical research emphasizes the primacy of the mean or median voter's policy preference as the starting point for democratic representation (Adams et al. 2004, 2006; Downs 1957; Erikson, MacKuen, and Stimson 2002; Huber and Powell 1994; McDonald and Budge 2005; Powell 2000; Stimson, MacKuen, and Erikson 1995), this paper expands this notion by considering the *variance of voters' policy preferences* as an additional aspect of public opinion. If parties converge to the median voter position in a Downsian fashion then "popular" representation may be said to occur. However, to exclusively study whether democracies represent the will of the median voter overlooks whether parties effectively represent the *diversity* (i.e., the variance) of policy preferences in the electorate.

Previous empirical studies on representation in advanced industrial societies have presented strong evidence that shifts in parties' policy positions tend to mirror shifts in the mean or median voter position (see Adams et al. 2004, 2006; Erikson, MacKuen, and Stimson 2002; Stimson, MacKuen, and Erikson 1995). Added to this criterion for evaluating democratic responsiveness is the concept of *dynamic distributional representation*. Dynamic distributional representation occurs when the diversity of policy alternatives on offer in a party system increases or decreases in response to changes in the diversity of voters' policy preferences. With respect to dynamic distributional representation, the following questions are addressed: First, are changes in the diversity of voter preferences accompanied by roughly corresponding shifts in the degree of diversity of policy choices on offer in a given party system? Second, is this linkage between policy diversity in the electorate and in the party system mediated by the electoral system?

The empirical analyses reported below support the following conclusions. First, the party systems that are analyzed do in fact display dynamic distributional representation. That is, the degree of policy diversity in these party systems systematically changes in response to changes in the diversity of mass publics' policy preferences. Furthermore, dynamic distributional representation is stronger in countries that feature *less* proportional voting systems, in particular plurality-based systems. The scope of the study includes 12 Western European democracies from 1976 to 1998.

There are at least three reasons why distributional representation is important. First, a central function of parliament is to reflect the diversity of public opinion (see, e.g., Pitkin 1967), and this is not possible unless the *party system* reflects public opinion diversity; for instance if there are no extreme parties in the system then extremist voters cannot elect representatives who will articulate their opinions. If the mean (or median) voter position is the only position that is represented

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in parliament, then a *disconnect* arises between the parties in a political system and those citizens that do not have centrist ideological views. Viewed through a representative lens, a party system with no choices available can hardly be viewed as democratic, and the diversity of policy choices offered by parties is one measure of how democratic a political system is.

Connecting to the above idea, Cox notes that the representative process can be defined "in terms of whether each voter can find a legislator who *advocates* similar views" (1997, 236; italics added). If this is indeed the case then—to the extent that citizens derive satisfaction when their policy views are articulated by political parties, and that these parties respond to shifts in voters' viewpoints—distributional representation should enhance popular satisfaction with the democratic process. Consequently, while it is impossible to implement policies that reflect every citizen's viewpoint, members of the mass public nevertheless derive satisfaction when an official (elected or not) publicly argues for their points of view, even if these viewpoints are outvoted in the legislature. One manifestation of this increased satisfaction is that ideologically diverse party systems may motivate higher voter turnout—an outcome that Powell (1982) has argued is normatively desirable.[1]

Second, the concept of dynamic distributional representation is significant because it is relevant to the literature on party positioning strategies. There is abundant theoretical research that seeks to explain centripetal and centrifugal incentives for party behavior, including studies by Cox (1990) and by Merrill and Adams (2002)—discussed below—that relate parties' policy strategies to the diversity of voters' policy beliefs.[2] However, to date no empirical study has explored whether parties systematically adjust their policies in response to changes in the diversity of public opinion. That is what is done here.

Third, in an important series of papers Andrews and Money (2005a, 2005b) argue that a crucial (and understudied) aspect of the political parties literature revolves around the properties of party systems *as a whole*, i.e., features that relate to party systems as organic entities rather than to their component parts (i.e., individual parties). The present study addresses the ideological diversity of the alternatives on offer within party systems, a focus which fits squarely within the Andrews-Money framework and suggests that the analysis of party systems as collectives illuminates important aspects of political representation.

In the following section, the *Voter Diversity* and the *Electoral Laws* hypotheses are formulated. The third section discusses the data and calculations used to test the hypotheses. The fourth section presents model specifications and analyzes the results, and the final section offers a brief explanation of the findings and concludes.

Hypotheses

The first hypothesis concerns the central linkage that is relevant to distributional representation, namely the connection between the diversity of the electorate's policy preferences and the diversity of the policy programs on offer in a party system:

> *H1 (the Voter Diversity Hypothesis)*: Changes in the diversity of voters' policy preferences cause corresponding changes in the diversity of policy positions presented by the competing parties in a political system.

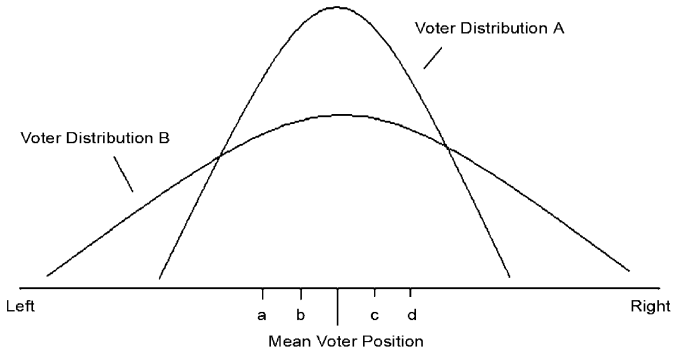
The first hypothesis is motivated by the theoretical work of Cox (1990) and Merrill and Adams (2002), which presents results suggesting that parties' centripetal/centrifugal incentives are influenced by the diversity of the electorate's policy preferences. The logic of these studies is quite clear: if voters spread towards the extremes of the ideological continuum, then vote-seeking parties have more to gain by articulating noncentrist viewpoints. Alternatively, as the degree of ideological diversity in the electorate declines, the expectation is that parties, responding to voters, will converge towards the center of the ideological space.

Figure 1 depicts the expectation that is raised by the Voter Diversity Hypothesis. The figure displays four parties, *a*, *b*, *c*, and *d*, that are arrayed along a left-right dimension; the figure also displays two voter distributions: A and B. If the voter distribution expands and, for example, shifts from Voter Distribution A to Voter Distribution B, then the Voter Diversity Hypothesis (H1) states that the parties will diversify their positions along the left-right continuum. Notice that even if the parties do not diversify their positions, the median voter is nevertheless represented under

[1]The normative value of distributional representation is also clear in the writings of Sartori who argues that "Parties are channels of expression. That is to say, parties belong, first and foremost, to the means of representation: They are an instrument, or an agency, for *representing* the people by *expressing* their demands" (1976, 27; italics original).

[2]Following Cox (1990), centripetal incentives are those that reward parties that converge towards the center of the voter distribution, while centrifugal incentives are the factors that cause parties to take distinctly noncentrist positions.

FIGURE 1 Demonstrating the Voter Diversity Hypothesis



Note: *a*, *b*, *c*, and *d* represent hypothetical parties.

either scenario (i.e., under Voter Distribution A or Voter Distribution B). This illustrates the point that normative conceptions of representation that emphasize the primacy of the median voter's policy position are distinct from the normative criterion that is explored here, which revolves around representation of the *diversity* of the mass public's policy preferences.

> *H2 (The Electoral Laws Hypothesis)*: The diversity of party ideologies on offer in party systems with proportional electoral laws is less responsive to changes in the degree of voter diversity than is the distributional responsiveness of party systems in countries with disproportional electoral laws.

While the Voter Diversity Hypothesis (H1) emphasizes the ideological connection between parties and their supporters, the Electoral Laws Hypothesis (H2) posits that this effect is mediated by the voting system, and, perhaps counterintuitively, that this connection is stronger in less proportional electoral systems.[3] The first argument that underlies H2 is that less proportional voting systems—notably plurality systems—plausibly motivate political parties to emphasize vote-seeking objectives, so that the parties competing in these systems can be expected to be more responsive to changes in the distribution of voters' policy preferences. The reason that disproportional systems plausibly promote vote-seeking behavior by parties is because of the well-known fact that such voting systems tend to "punish" smaller parties and reward larger parties when national vote returns are converted into parliamentary seats (see Cox 1997; Taagepera and Shugart 1989); for this reason, disproportional systems may motivate parties to place a premium on gaining substantial vote shares, so that they can be among the large parties that benefit from this effect. By contrast the lower effective seat thresholds associated with highly proportional (PR) voting systems plausibly motivate the parties in these systems to emphasize policy objectives and to thereby be more ideologically "rigid" in the face of voter shifts, because these parties are assured of at least some parliamentary representation when they are confident that their vote shares will exceed the relatively low national thresholds that are necessary to obtain legislative seats in highly proportional systems.[4]

A related argument, one that is emphasized by Dow (2001), is that in disproportional, plurality-based systems the major parties may reasonably aspire to win a single-party parliamentary majority, which gives these major parties added incentives to maximize votes. For instance, the plurality-based postwar elections held in Britain and New Zealand (the latter country featured plurality until its switch to PR in 1996) returned single-party parliamentary majorities in over 80% of the cases.[5] Dow (2001) argues that this "winner-take-all" feature of disproportional, plurality-based elections motivates political parties to be highly responsive to voters' policy preferences.

While it is naïve to suggest that parties in PR systems do not seek votes, it is equally naïve to overlook that competing priorities exist for parties operating under PR electoral rules. For example, the work of Norman Schofield and his co-authors (Schofield et al. 1998) as well as Laver and Shepsle's *Making and Breaking Governments* (1996) suggests that in order to be part of the government, parties need to be attractive coalition partners, i.e., parties are motivated to

[3]Notice that the Electoral Laws Hypothesis could be framed as a nondirectional hypothesis. Namely, it is also reasonable to expect that proportional systems would display higher levels of distributional responsiveness than plurality voting systems. The intuition behind this expectation is fairly clear: smaller parties (associated with PR systems) should have more information about their supporters, and, furthermore, these parties are more flexible in terms of responding to shifts in their supporters' positions. In contrast, the large parties associated with electoral competition in disproportional systems should have more difficulty collecting information about their supporters, and their correspondingly larger organizational structures should make it more difficult to respond to their supporters' ideological shifts.

[4]There is evidence that in multiparty systems (i.e., systems associated with PR electoral rules), parties increase their vote shares as their policy distance to the mean voter position decreases (see Ezrow 2005). Yet the extent to which parties actually respond to these centripetal incentives is unclear, which also suggests that increasing vote shares is not the sole motive explaining party behavior in PR systems.

[5]Fifteen out of seventeen postwar British elections have returned single-party parliamentary majorities, while in New Zealand each of the postwar elections held under plurality through the mid-1990s returned parliamentary majorities.

respond to the policy preferences of other *parties* in the system, rather than responding exclusively to *voters*' policy preferences. Shifting away from the center of the party system, in response to increasing ideological diversity in the electorate, is likely to make parties less attractive coalition partners, even if this outward shift garners additional popular support. Thus parties in PR systems have incentives to consistently appeal to potential post-election coalition partners, regardless of whether or not voters' policy positions have changed.

Furthermore, to the extent that parties are policy seeking rather than office seeking, recent theoretical work suggests that parties in plurality-based systems will be more responsive to the changes in the diversity voters' ideologies than will parties in PR systems. Smirnov and Fowler (2004) argue that parties' optimal positions in two-party, plurality-based elections *diverge* as the electorate becomes more polarized. However on the PR-side, an Adams and Merrill (2005) study on policy-seeking strategies in multiparty-PR electoral contexts concludes that parties are motivated to adjust their policy strategies in response to their beliefs about the median voter's position, rather than in response to the diversity of voter ideologies in the electorate. In sum, there are persuasive theoretical reasons to expect that parties—whether they are office or policy seeking—will be most responsive to changes in the electorate's ideological diversity when elections are conducted using less proportional voting systems.

Data and Measurement

Measuring Parties' Policy Positions, Voter Dispersion, and Proportionality

The Voter Diversity Hypothesis posits that changes in the dispersion of voters' ideological preferences are accompanied by similar shifts in the dispersion of parties' policy positions. Thus, to test this proposition it is necessary to develop longitudinal, cross-national measures of parties' policy programs as well as of voters' policy preferences.

For longitudinal measurements of party policy positions, the estimates from the Comparative Manifesto Project (CMP) are used. The CMP has coded the policy programs of the significant parties competing in the elections of approximately 25 democracies throughout the post-War period. This data source is particularly useful as it provides longitudinal and cross-national estimates of parties' policies for the countries and time periods under examination. Moreover, these estimates of party positions should be reliable and accurate statements about parties' positions at the time of elections, as evidenced by intense intra-party debates over the content of parties' programs.

While the methods that are employed to map parties' policy positions based on their election programs are briefly reviewed here, they are described in far more detail in several publications linked to the CMP.[6] The coders isolate "quasi-sentences" in the party's policy program and pair them with a policy category (e.g., education, defense, law and order, morality, etc.). The percentages of each category provide the basis for estimating the policy priorities of a party.

The CMP ideological scores for parties' policy programs range from −100 (extreme left) to +100 (extreme right). The analytical payoff of the CMP data is that it allows one to "map" party positions over time. Furthermore, these measures are generally consistent with those from other party positioning studies, such as those based upon expert placements, citizen perceptions of parties' positions, and parliamentary voting analyses, which provides additional confidence in the longitudinal and cross-national reliability of these estimates (see Hearl 2001; Laver, Benoit, and Garry 2003; McDonald and Mendes 2001). For the analyses the parties' left-right positions have been rescaled from the −100 to +100 scale used by the CMP to the 1–10 scale that is customarily used in survey research; this allows for meaningful comparisons to be made with the voter dispersion data described below.

The longitudinal measure of voter dispersion derives from Eurobarometer surveys dating from 1976 (the first year that the left-right self-placement item appears on the Eurobarometer survey) until 1998 (the most recent year for which the CMP data is available). The surveys ask approximately 1,000 respondents in each country to place themselves on a 1-10 left-right ideological scale.[7] The standard deviation of respondents' self-placements constitutes the measure of voter dispersion. The dispersions of Eurobarometer respondents' left-right self-placements, stratified by year, for the 12 countries included in the analysis—Belgium, Denmark, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, and Spain—are reported in an appendix (Table A1) at the JOP website (http://journalofpolitics.org/

[6]For a more thorough description of the coding process, see Appendix 2 in Budge et al. (2001).

[7]Specifically, the Eurobarometer surveys ask, "In political matters, people talk of 'the left' and 'the right.' How would you place your views on this scale?"

articles.html). The interelection periods that are included in the empirical analyses are presented in this web appendix as well.

Finally, to measure voting system proportionality, the electoral system disproportionality index developed by Gallagher (1991) is relied upon, which measures the squared differences between parties' vote shares and their seat shares in parliament. The equation for the Gallagher Index of Disproportionality is $\sqrt{\frac{1}{2}\Sigma(v_i - s_i)^2}$, where v_i and s_i are the vote shares and seat shares for party *i*. According to this measure, larger discrepancies between votes and seats indicate greater electoral system disproportionality. These measures indicate that countries such as Denmark, Germany, and Belgium feature quite proportional electoral systems, while Britain and France—the two countries in the study that employ some form of plurality—are comparatively disproportional.[8]

Measuring the Dependent Variable: Interelection Shifts in Party System Dispersion

Although measuring parties' policy programs is relatively straightforward insofar as the information has already been collected by the Comparative Manifesto Project, aggregating parties' policy positions into a valid country-level measure of party system dispersion is more complicated. Specifically, in constructing such a measure, scholars disagree about whether or not the parties' positions should be weighted by their size (see Alvarez and Nagler 2004; Dow 2001; Kollman, Miller, and Page 1998). The argument for weighting party system dispersion by party size is that such weighting accounts for the fact that the small parties in some countries—such as the American Green Party, the British Socialist Party, and so on—have virtually no political influence, so that their policy proposals do not enlarge the menu of policy choices available to voters in any meaningful sense. The arguments for relying on an unweighted measure of party system dispersion are, first, that any weighting system is unavoidably arbitrary given that a parties' policy influence does not necessarily correlate with vote (or seat) share, and, second, that small parties provide a vehicle through which voters can express their policy preferences, regardless of whether or not such parties significantly influence government policy outputs. Both of these arguments appear reasonable, and, consequently, empirical analyses are reported for both weighted and unweighted measures of party system dispersion.

The unweighted party system dispersion measure is defined as the standard deviation of all of the parties' policy positions that are reported by the Comparative Manifesto Project for a given election. The weighted party system dispersion measure is based on the *Party System Compactness* measure that has been developed in a *Political Analysis* paper by Alvarez and Nagler (2004), where the measure of party dispersion weights—by vote shares—parties' policy distances from the party system center. The equation for weighted party system dispersion is:

$$\textit{Weighted Party System Dispersion} = \sqrt{\sum\nolimits_{j=1} \mathrm{VS}_j\left(\mathrm{P}_{jk} - \overline{\mathrm{P}}_k\right)^2} \qquad (1)$$

where

P_k = the *weighted* mean of all the parties' left-right ideological positions in country *k*.

P_{jk} = the ideological position of party *j* in country *k*.

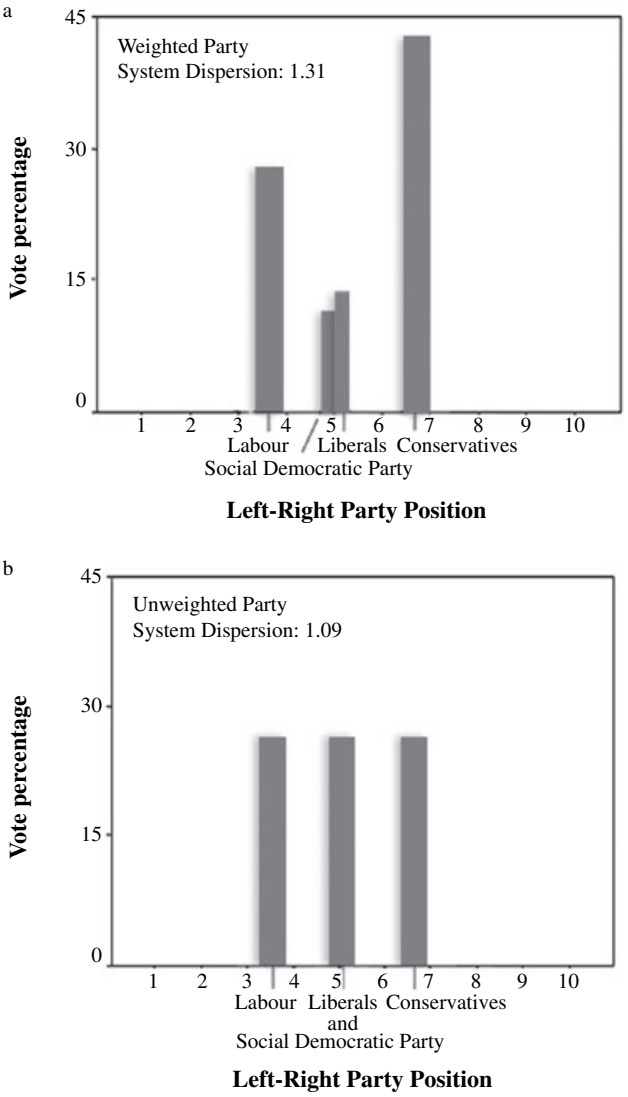
VS_j = Vote share for party *j*.

To visualize the mechanics of the unweighted (UPSD) and weighted (WPSD) measures of party system dispersion, refer to Figure 2a and 2b which depict the 1983 elections in Great Britain. The WPSD measure is calculated as 1.31, while UPSD is calculated as 1.09.[9] The explanation for the difference is straightforward—the Conservative and Labour Parties are coded as relatively noncentrist parties in the British system, and they received the largest shares of the vote in the 1983 national elections. Thus the

[8]The electoral system disproportionality scores for each country are also reported in the web appendix. In addition, note that the countries' relative rankings with respect to Gallagher's measure of disproportionality are consistent with alternative measures developed to assess voting system disproportionality, such as Taagepera and Shugart's measure of "Effective District Magnitude" (see Table 12.1 in Taagepera and Shugart 1989). The substantive conclusions reported below do not change when disproportionality is measured using effective district magnitude in place of the Gallagher Index.

[9]Specifically, the unweighted party system dispersion (UPSD) measure is calculated as $\sqrt{\frac{(3.74-5.17)^2+(5.07-5.17)^2+(5.07-5.17)^2+(6.81-5.17)^2}{4}} = 1.09$, where 5.17 represents the mean party position, and 3.74, 5.07, 5.07, and 6.81 represent the positions of Labour, the Social Democrats, the Liberals, and the Conservative Party, respectively. The weighted party system dispersion (WPSD) measure is calculated as $\sqrt{\begin{array}{l}.289\times(3.74-5.17)^2+.122\times(5.07-5.17)^2+\\ .144\times(5.07-5.17)^2+.445\times(6.81-5.17)^2\end{array}} = 1.31$, where the parties' deviations from the weighted party mean (5.46) are weighted by their shares of the vote.

FIGURES 2a and 2b Demonstrating the Weighted and Unweighted Measures of Party System Dispersion: The 1983 British National Elections



Notes: The parties' left-right positions represent the CMP's codings of the parties' policy programmes. The CMP codings, which range from −100 to +100, have been recalibrated to a 1-10 scale. Although the Liberals and Social Democratic Party have been coded as separate parties, the estimates of their Left-Right scores are identical (5.07) for the 1983 Elections. Also note that this clarifies Figure 2a, which portrays the Liberals as gaining approximately 2 percentage points more than the Social Democratic Party.

diversity of the parties' positions in 1983 Britain is greater when the parties' positions are weighted by their vote shares than when all party positions are weighted equally.

Testing the Voter Diversity and Electoral Laws Hypotheses

Model Specification for the Hypotheses

A multivariate regression model is specified in order to test the Voter Diversity Hypothesis (H1) and the Electoral Laws Hypothesis (H2). The dependent variable in the analyses is the interelection change in party system dispersion, and the crucial independent variable is the interelection change in voter dispersion, defined as the change in the standard deviation of voters' ideological self-placements between the year of the current election and the year of the previous election. In addition, the Electoral Laws Hypothesis (H2) states that the linkages between voters' ideological diversity and party system dispersion are mediated by the proportionality of the electoral system. The basic model specification is:

$$\begin{aligned} &\textit{Change in party system dispersion}\,(t) \\ &\quad = B_1 + B_2[\textit{Change in voter dispersion}\,(t)] + \\ &\quad\quad B_3[\textit{Change in voter dispersion}\,(t) * \textit{Electoral system disproportionality}] + \\ &\quad\quad B_4[\textit{Electoral system disproportionality}] \end{aligned} \quad (2)$$

where

Change in party system dispersion (t) = the change in the dispersion of parties' left-right policy positions in the current election, compared with the dispersion of party positions in the previous election (election t-1), based on the CMP data.

Change in voter dispersion (t) = the change in the dispersion of citizen policy preferences in the current election, compared with the dispersion of citizen policy preferences in the previous election (election t-1), based on the Eurobarometer data.

Electoral system disproportionality = the measure of disproportionality as estimated by Gallagher's Index of Disproportionality, reported in Appendix A in Lijphart (1999).

The dependent variable, *change in party system dispersion*, is constructed so that positive scores indicate that the dispersion of parties' policy positions has increased between elections, and negative scores denote a convergence of parties' policies. The independent variable, *change in voter dispersion*, is constructed so that positive scores indicate that voters' policy preferences have become more dispersed between elections, and negative scores denote the opposite. Thus, if there is evidence for the Voter Diversity Hypothesis (H1), the parameter estimating the effects of *change in voter*

dispersion (the parameter B_2 in equation 2) will be positive and statistically significant.

To test the Electoral Laws Hypothesis, the interaction term, *change in voter dispersion*electoral system disproportionality*, is included in the specification. If the parameter estimate B_3 associated with this variable is positive and statistically significant, this will support the Electoral Laws Hypothesis (H2), that party system dispersion is more responsive to voter system dispersion in countries with disproportional electoral laws. The *electoral system disproportionality* variable is included in the specification on its own so that the effects of the interaction term are measured accurately (see Brambor, Clark, and Golder 2006; Braumoeller 2004).[10] The specification given by equation 2 is labeled the *basic specification*.[11]

Results for the Basic Specification

The analysis encompassed 62 interelection policy dispersion shifts by voters and parties in Britain, Italy, Denmark, Belgium, France, Greece, Spain, Luxembourg, the Netherlands, Portugal, Ireland, and Germany in the period 1976–98. The data are best characterized as time-series cross-sectional (TSCS) as the set of observations include an average of 5.2 interelection measurements per country, across 12 Western European democracies. Estimating a simple regression on the pooled data can lead to erroneous conclusions if there are unobserved differences between countries (Green, Kim, and Yoon 2001; Hsiao 2003). A likelihood ratio test for random effects ($X_1^2 = .00$, $p = 1.00$) failed to reject the null hypothesis of no country-specific effects.[12] Thus unobserved differences between countries are not driving the major findings.

The parameter estimates for the basic specification are presented in columns 1–2 of Table 1. In the table, the coefficients estimating the effect of the *change in voter dispersion* variable upon the *change in party system dispersion* variable are positive and reach statistical significance, regardless of whether the calculations are based on the Unweighted Party System Dispersion variable (column 1) or the Weighted Party System Dispersion variable (column 2). Accordingly, the evidence supports the *Voter Diversity Hypothesis* (H1), that shifts in party system dispersion systematically vary in the same direction as shifts in voter dispersion. This finding, which is labeled the *Voter Distribution Effects Result*, is illustrated in Figure 3, which plots shifts in the standard deviation of voter self-placements (i.e., voter dispersion) along the *x*-axis, and shifts in the weighted version of the party system dispersion variable along the *y*-axis. The pattern that emerges from the 62 dots is that when grouping together the 12 Western European democracies included in the empirical analyses, changes in the diversity of voters' policy preferences are associated with similar shifts in the diversity of policy programs on offer by the political parties.

Returning to Table 1, the parameter estimates for the *change in voter dispersion*electoral system proportionality* variable are positive and reach statistical significance, for both the weighted and unweighted measures of party system dispersion. These estimates support the *Electoral Laws Hypothesis* (H2), that party system dispersion is more responsive to voter dispersion in countries that feature less proportional electoral systems. This finding is labeled the *Electoral Laws Result*.

It should be clarified that the Electoral Laws Result does not imply that the parties in proportional systems are completely unresponsive to shifts in the diversity of their voters' policy opinions. Instead the implication of the finding is that distributional responsiveness is generally present across political systems, but that these effects are stronger in disproportional systems. This point is illustrated in Figure 4, which plots shifts in voter dispersion against shifts in (weighted) party system dispersion, for countries with highly disproportional voting systems (Figure 4a) and for countries with more proportional systems (Figure 4b). The disproportional systems include France, Britain, Greece, and Spain, and the proportional systems include Belgium, Denmark, Germany, Ireland, Italy, Luxembourg, the Netherlands, and Portugal.[13] Note that in

[10]Braumoeller (2004) has demonstrated that properly estimating the effects of interaction terms necessarily involves including in the model specification each of the constitutive terms (in this case, these terms are *electoral system disproportionality* and *change in voter dispersion*).

[11]The independent variables have been centered in order to improve the substantive interpretation of the results from the interaction model (on centering, see Brambor, Clark, and Golder 2006 and Kam and Franzese 2005).

[12]The *electoral system disproportionality* variable does not vary within countries, which makes running a fixed-effects model for the original specification problematic, as this term naturally drops out of the model specification. Nevertheless, theoretical considerations relating to party system contraction (discussed in footnote 15) led to the estimation of country-specific intercepts, and the results from these analyses supported the substantive conclusions that are reported below.

[13]The countries are divided into "disproportional" and "proportional" categories based on the disproportionality scores reported in Appendix A in Lijphart (1999) where a (relatively sizeable) 4-point gap divides the two groupings.

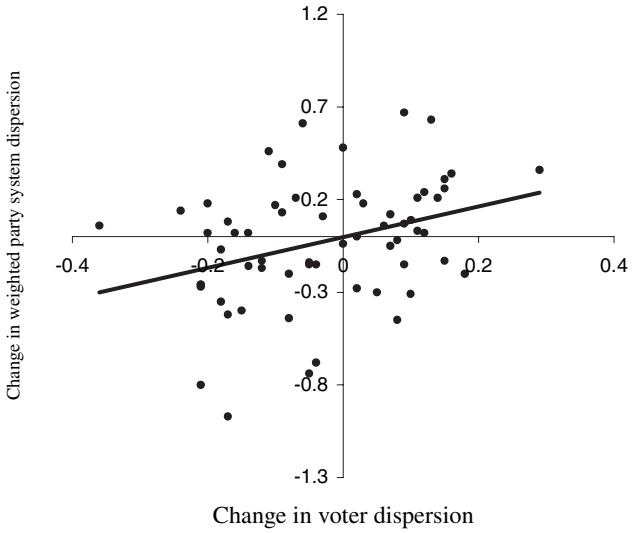
TABLE 1 Multivariate Analyses of Interelection Party System Dispersion Shifts

	Unweighted Party System Dispersion *Basic* (1)	Weighted Party System Dispersion *Basic* (2)	Unweighted Party System Dispersion *Advanced* (3)	Weighted Party System Dispersion *Advanced* (4)
Change in voter dispersion (t)	.45*	.89***	.54**	.84***
	(.26)	(.30)	(.24)	(.30)
Change in voter dispersion (t)	.09†	.11*	.12**	.16**
	(.05)	(.06)	(.06)	(.07)
**Electoral system disproportionality*				
Electoral system disproportionality	−.007	−.01	−.008	−.02*
	(.007)	(.008)	(.007)	(.01)
Change in party system dispersion (t-1)			−.41***	−.42***
			(.10)	(.11)
Intercept	−.03	−.03	−.04	−.05
	(.04)	(.04)	(.03)	(.04)
N	62	62	50	50
Adjusted R^2	.04	.13	.30	.33

Notes: *$p < .10$, **$p < .05$, ***$p < .01$, two-tailed test; †$p = .105$. Standard errors are in parentheses. The unweighted version of the dependent variable is the change in the standard deviation of left-right policy offerings for a country between election t-1 (the previous election) and election t (the current election), based on the left-right codings of parties' policy programs that are reported in the CD-ROM in Budge et al. (2001). The calculations for weighted party system dispersion are in Equation 1 in the text. The definitions of the independent variables are given in the text as well.

In addition, note that one observation per country is sacrificed by including the lagged dependent variable, *change in party system dispersion (t-1)*, in the advanced specification (columns 3–4). The results of these analyses are consequently based on 50 observations instead of 62, since there are 12 countries included in the study.

FIGURE 3 Interelection Shifts of Voter and Party Dispersion



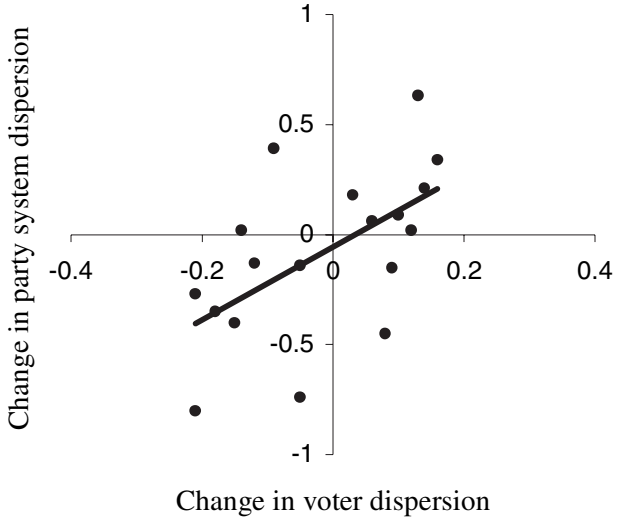
Notes: The calculations for the weighted version of party system dispersion are in Equation 1 in the text. Voter dispersion is calculated as the standard deviation of citizens' left-right self-placement scores from the Eurobarometer survey of the election-year for each country (see Table A1 in the web appendix).

both figures the slope of the estimated regression line is positive, indicating that—for both more and less proportional systems—increases in voter dispersion are associated with increases in party dispersion. However the regression line slope is much steeper for disproportional systems ($B = 1.66$) than for proportional systems ($B = .56$). Thus the interpretation of the model suggests that the Voter Distribution Effects Result applies to the 12 industrialized democracies included in the empirical analyses. However, the Electoral Laws Result implies that party system responsiveness, defined in terms of how the diversity of parties' policy offerings varies with the dispersion of citizens' policy preferences, is stronger in systems that feature less proportional electoral laws.[14]

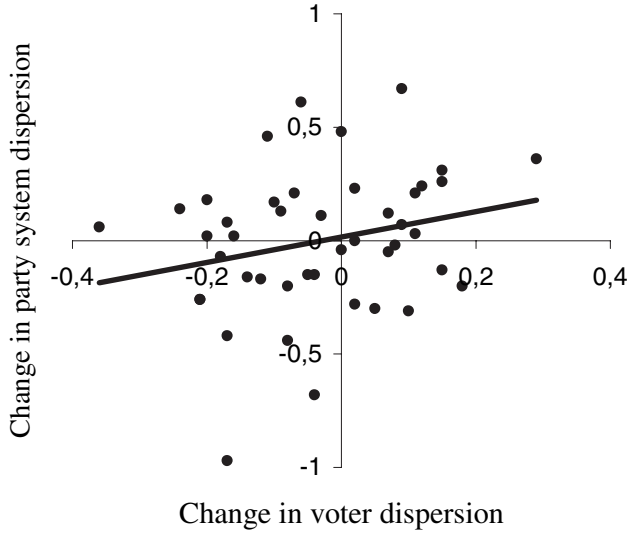
[14]Note that the empirical support reported for the Electoral Laws Hypothesis is also consistent with previous empirical research. Paul Pennings (2005) conducts a similar analysis for the Netherlands during approximately the same time period, 1971–2002. In the (proportional) Dutch system, Pennings observes "partisan rigidity" and that "parties seem to stick to their ideological profile and do not make extreme shifts in their policy priorities, as voters seem to do from time to time" (2005, 36–37). This implies that parties in proportional systems such as the Netherlands place an emphasis on implementing their preferred policy preferences and/or on maintaining a stable, unwavering policy image.

FIGURES 4a and 4b Interelection Shifts of Voter and Party Dispersion for Disproportional (4a) and Proportional Systems (4b)

a



b



Notes: France, Great Britain, Greece, and Spain are classified as disproportional systems, while Belgium, Denmark, Germany, Ireland, Italy, Luxembourg, the Netherlands and Portugal are classified as proportional systems. The calculations for weighted party system dispersion are in the first equation in the text. Voter dispersion is measured by calculating the standard deviation of voter left-right self-placements from the Eurobarometer survey of the election-year for each country. Also, note that Britain and Greece are the most distributionally responsive political systems, while the Netherlands, Germany, and Luxembourg—three of the most proportional systems in the data set—are the least distributionally responsive systems.

Sensitivity Analyses

Given the structure of the data, serially correlated errors (within countries) is a possibility. That is, the causal processes which generate the change in the diversity of party preferences at time t, could also be operating during the prior interelection period (t-1). Indeed Lagrange Multiplier tests reveal the existence of temporal correlation for the dependent variable, change in party dispersion. To address this issue, the parameters of a model that was identical to the basic specification given in equation 2 has been estimated, *except* that it incorporated an additional variable, *change in party system dispersion (t-1)*, which is the lagged version of the dependent variable (see Beck and Katz 1995, 1996). This model is labeled the *advanced specification*. The parameter estimates for the advanced specification, which are reported in columns 3–4 of Table 1, continue to support the Voter Distribution Effects and the Electoral Laws Results.

In addition to the results reported in Table 1, the parameters were estimated for several additional pooled data specifications. The parameters were estimated for a fixed-effects model specification that tested for country-specific effects.[15] Furthermore, the advanced model specification was reestimated on a country-by-country basis, omitting one country at a time. A final model was respecified using the cross-sectional data, where the actual value of party system dispersion at election (t) was the dependent variable, and voter dispersion at election (t) was the crucial independent variable (including the lagged dependent variable as one of the independent variables).[16] The parameter estimates for each of the model specifications described above support identical substantive conclusions to the ones reported in this study.[17]

[15]The fixed-effects model controls directly for the possibility of party system contraction, a pattern implied by the finding reported in Adams et al. (2004), that political parties are more responsive to public opinion shifts that move voters away from the party's position (as occurs for left-wing parties, for instance, when public opinion shifts to the right), than they are to public opinion shifts in the party's direction. This finding implies that party systems should contract over time. The author would like to thank an anonymous referee for raising this point.

[16]The reason for estimating the parameters of this model is that the dependent variable is constructed as the *difference* in party system dispersion between election (t-1) and election (t). By specifying the dependent variable in this way, it is assumed that in a model which estimates the actual value of the dependent variable, that the coefficient estimating the effects of the lagged dependent variable will be equal to one (Markus 1979).

[17]The results from these analyses are presented in Tables A2–A4 in the web appendix.

Conclusion

> A shift in the universality of franchise, a weakening of traditional views by some cataclysmic event like World War II, a social revolution like that following upon industrialization—any such disturbing occurrence may move the modes on the political scale. A change in the number of voters *per se* is irrelevant; it is the distribution which counts. (Downs 1957, 130–31)

According to Downs, knowing the distribution of voters is crucial for understanding the landscape of political competition. Yet there has been very little, if any, systematic cross-national empirical examination of voter distribution effects. This study hurdles some of the macrolevel observational barriers that are required to analyze theories at the party system level. In so doing, two related results emerge. The first is the Voter Distribution Effects Result, that the diversity of policies on offer by political parties tends to be responsive to the *diversity* of the electorate's policy preferences. The specific relevance of this finding is that it lends empirical observation to formal theory that seeks to explain the net incentives, i.e., centrifugal versus centripetal incentives, for party positioning across political systems. Indeed, the diversity of the electorate's left-right policy preferences systematically influences the diversity of parties' policy positioning. This empirical finding is consistent with the theoretical results reported by Cox (1990) and Merrill and Adams (2002).

The broader significance of the Voter Distribution Effects Result is that it neatly complements traditional macrolevel empirical analyses of policy representation (see, e.g., Stimson, MacKuen, and Erikson 1995), which emphasize responsiveness to the center of public opinion, by also considering the responsiveness of a party system as a whole to the *distribution of voters' policy preferences*.

The second major finding is the Electoral Laws Result, which states that political systems featuring less proportional electoral rules are more distributionally responsive than are more proportional electoral systems. This finding supports some of the arguments that were cited in the second section above (see Laver and Shepsle 1996; Schofield et al. 1998), suggesting that policy moderation and policy rigidity is perhaps more common in PR systems than originally thought. Conversely, the Electoral Laws Result also implies that parties are extremely sensitive to shifts in their supporters' positions under disproportional electoral laws and that this motivation could be due in part to the structural incentives which induce parties to emphasize vote maximization more so than in proportional systems.

The findings raise several interesting questions for future research. While the evidence suggests that there are indeed direct linkages between the diversity of voter preferences and the diversity of policy positions that are on offer by parties in a political system, the explanations that have been offered are only tentative. A comprehensive explanation requires *contextual* analyses of Western European parties: namely, of parties' organizational structures, party elites, as well as of rank-and-file party supporters. An analysis of these factors, though outside the scope of this study, is necessary in order to reach a better understanding of how changes occur to the diversity of policy choices that political parties present to the electorate.

Nonetheless, these findings are relevant to our understanding of the democratic process and, specifically, to the dynamics between voter and party ideologies across institutional settings. Moreover, the study is perhaps refreshing for normative visions of democracy, insofar as it implies that party systems do not act solely as a policy conduit for the median voter.

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